

## PICTURE OF THE MONTH

### Giant Icebergs in the Weddell Sea

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Swithinbank (1969) mentions the drifting of two great icebergs, possibly detached from the Amery Barrier ( $73^{\circ}$  E.) at the end of 1963 and seen along the Antarctic coast between  $15^{\circ}$  and  $20^{\circ}$  W. in January 1968 (fig. 1).

During the Argentine Navy Antarctic campaign in the summer of 1968/1969, the icebreaker *ARA General San Martín* met with serious difficulties in furnishing supplies to Base General Belgrano ( $77^{\circ}58'$  S.,  $38^{\circ}48'$  W.) due to the presence of two large icebergs in Duke Ernest Bay (figs. 2 and 3). These icebergs may be the same as those identified in the ESSA 7 picture on Feb. 7, 1969 (fig. 4), and also on Feb. 8, 1969.

Months later, APT images from Nimbus 3 received at Base Aeronaval Río Gallegos ( $51^{\circ}38'$  S.,  $69^{\circ}13'$  W.) and AVCS photography from ESSA 9 of October 1969 (fig. 5) showed a dark northeast-southwest-oriented patch about 11 km wide and 80 km long in the eastern part of Duke

Ernest Bay. This patch is assumed to be a small water lead associated with an iceberg nearby to the north and having similar dimensions—observe the hummocked appearance (A) in figure 5. This water lead with the brighter northern border differs notably in appearance from other known ice-free waters—see (B) in figure 5. The patch at (A) appears clear on those days with very little or no cloudiness at Base General Belgrano, ruling out the hypothesis that these are clouds (table 1).

Note in figure 5 that the iceberg in question has a relative position rotated  $90^{\circ}$  around its southern end, possibly aground, with respect to the position observed in figure 4. This agrees with the observation illustrated in figure 2.

Due to the natural erosion suffered by the aforementioned iceberg, its tracking has become very difficult

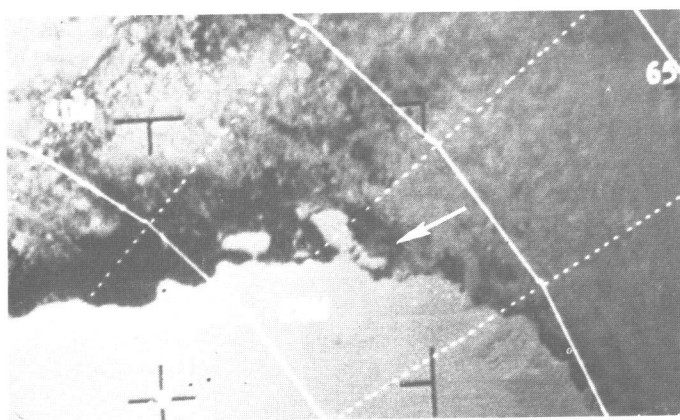


FIGURE 1.—ESSA 3 view, orbit 5869, frame 11, of Jan. 12, 1968.

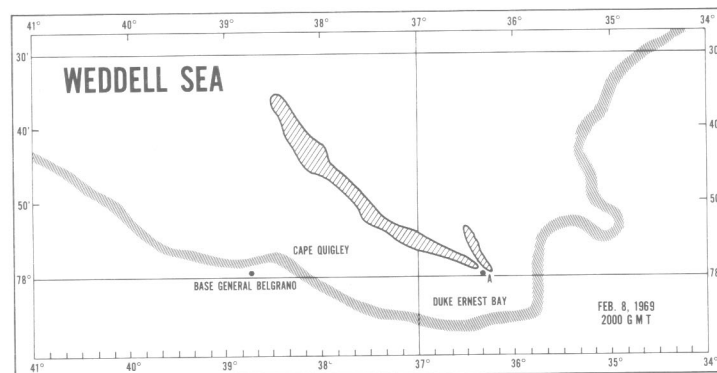


FIGURE 2.—Positions of two icebergs at 2000 GMT on Feb. 8, 1969, drawn aboard the icebreaker *ARA General San Martín*. Both icebergs pivoted about point (A), thus creating a very hazardous approach for the ship to the base.

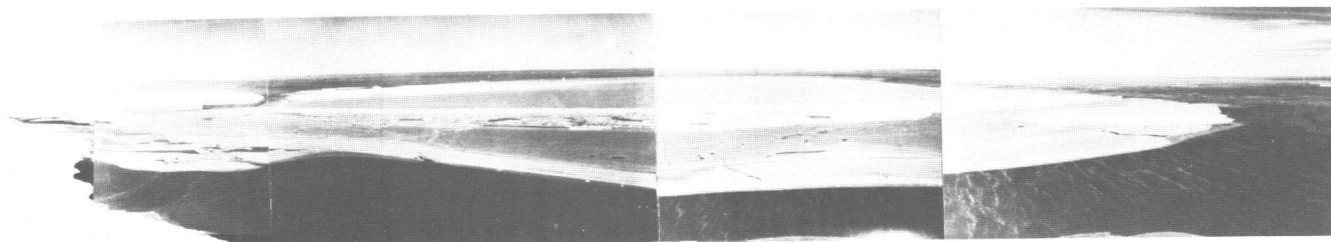


FIGURE 3.—Panoramic view northward at 1300 GMT on Feb. 6, 1969, depicting the large iceberg shown in figure 2. These high-angle oblique views were taken aboard a helicopter from the icebreaker *ARA General San Martín* in the left middle ground. The helicopter's position was in the vicinity of Shackleton Base at  $77^{\circ}56'$  S.,  $37^{\circ}08'$  W.

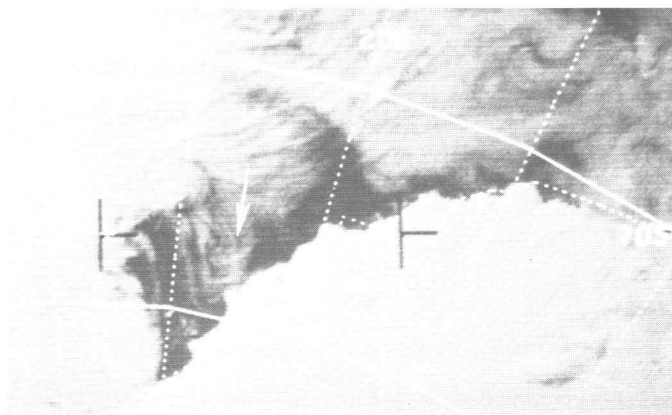


FIGURE 4.—ESSA 7 view, orbit 2194, frame 11, of Feb. 7, 1969.

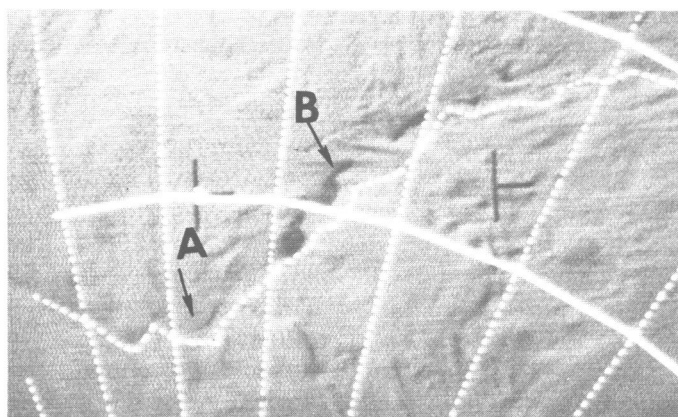


FIGURE 5.—ESSA 9 view, orbit 3002, frame 12, of Oct. 24, 1969.

since October 1969. There are certain evidences (table 2) that denote its presence.

Unfortunately, since we do not have any infrared information from lightless periods of the polar regions that would have allowed systematic tracking, we cannot be absolutely certain that the iceberg observed in 1968 at Duke Ernest Bay is the same one that detached itself at the end of 1963 from the Amery Barrier.

TABLE 1.—Cloudiness data at Base General Belgrano, including ESSA 9 views, frames 11 and 12, for October 1969

Day	Hour (GMT)	Orbit	Cloudiness at 1800 GMT (Octas)
24	1644	3002	3
24	1839	3003	3
25	1743	3015	No data
26	1841	3028	4
27	1550	3039	0
27	1745	3040	0
29	1548	3064	0
29	1743	3065	0
30	1646	3077	0
30	1842	3078	0

TABLE 2.—Evidences indicating iceberg presence since October 1969 as detected from AVCS pictures from ESSA 9

Orbit	Bearing	Orbit	Bearing
3127	NE.-SW.	3990	NW.-SE.
3140		4089	NNW.-SSE.
3164		4139	
3377		4352	NNE.-SSW.
3378		4353	
3577	N.-S.	4364	
3729		4389	
3778			

The idea suggested by Fleming (1969)—it might be the SANAE (South African National Antarctic Expedition) Glacier Tongue that sheared off in mid-1967, being perhaps knocked off when the migrating iceberg passed by—must not be discarded. It is, however, evident that two icebergs have been observed since this date.

#### REFERENCES

- Fleming, Michael H., Environmental Sciences Group, National Environmental Satellite Center, ESSA, Hillcrest Heights, Md., 1969 (personal communication).
- Swithinkbank, Charles, "Giant Icebergs in the Weddell Sea 1967/68," *Polar Record*, Vol. 14, No. 91, The Scott Polar Research Institute, Cambridge, England, Jan. 1969, pp. 477-478.